## **IN THE CLAIMS:**

Please amend the claims as follows. Any other difference between the claims below and the previous state of the claims is unintentional and in the nature of a typographical error.

1. (Currently Amended) For use in a fixed-size packet switch, a switch fabric comprising:

an input scheduler that receives at least one incoming fixed data packet to be forwarded into a

simulated switch to at least one N input buffers, wherein the N input buffer is configured to receive

at least one incoming fixed data packets at a first data rate and is further configured to output said at

least one incoming fixed data packet at a second data rate, wherein the second data rate is at least

twice the first data rate and is configured to promote an emulated buffered crossbar; and wherein the

queuing of the input buffer is performed through a virtual output queue such with in the simulated

switch where the incoming fixed data packets are queued according to their destination port;

an output scheduler that receives at least one outgoing fixed data packet to be forwarded out of the simulated switch to at least one N output buffers, wherein the N output buffer is configured to receive fixed-size data packets at said second data rate and configured to output said fixed-size data packets to an output port at said first data rate, wherein said N output buffers are internal to said switch fabric and are external to said output port, wherein the input and output schedule the at least one incoming data packet and one incoming fixed data packet once per timeslot; and

a bufferless, non-blocking interconnecting network configured to receive from said N input buffers said fixed-size data packets at said second data rate and configured to transfer said fixed-size data packets to said N output buffers at said second data rate; and

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a scheduling controller connected to the bufferless, non-blocking interconnecting network,

wherein the scheduling controller is configured to determine a maximal configuration of the

bufferless, non-blocking interconnecting network and emulated crossbar based upon the data in the N

input buffers and controls the configuration of the bufferless, non-blocking interconnecting network

through communications with the bufferless, non-blocking interconnecting network, and wherein the

scheduling controller further promotes a transmitting of a matched head of line cell at each virtual

output queue and repeats the configuration of the emulated crossbar twice per time slot.

2. (Original) The switch fabric as set forth in Claim 1 wherein said bufferless, non-blocking

interconnecting network comprises a bufferless crossbar.

3. (Original) The switch fabric as set forth in Claim 1 wherein each of said N input buffers

is at least twice the size of each of said N output buffers.

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4. (Previously Presented) A method of operating a switch fabric in a fixed-size packet

switch, the method comprising the steps of:

storing incoming fixed-size data packets from input port in N input buffers at a first data rate,

wherein said N input buffers are internal to said switch fabric and are external to said input port;

outputting the fixed-size data packets from the N input buffers at a second data rate equal to

at least twice the first data rate;

transferring the fixed-size data packets output by the N input buffers at the second data rate

through a bufferless, non-blocking interconnecting network to N output buffers using an emulated

crossbar, wherein said N output buffers are internal to said switch fabric and the bufferless, non-

blocking interconnecting network is connected to a scheduling controller, and wherein the

scheduling controller determines a maximal configuration of the bufferless, non-blocking

interconnecting network and emulated crossbar based upon the data in the N input buffers and

controls the configuration of the bufferless, non-blocking interconnecting network;

storing the fixed-size data packets transferred through the bufferless, non-blocking

interconnecting network in the N output buffers at the second data rate; and

outputting the fixed-size data packets from the N output buffers at the first data rate to an

output port, wherein said N output buffers are external to said output port, wherein control of delay,

jitter, throughout, and ordering of packets is controlled through a the performance of the switch is

controlled by the controller adjusting the emulated crossbar and through a virtual output queue.

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- 5. (Original) The method as set forth in Claim 4 wherein the bufferless, non-blocking interconnecting network comprises a bufferless crossbar.
- 6. (Original) The method as set forth in Claim 5 wherein each of the N input buffers is at least twice the size of each of the N output buffers.

7. (Currently Amended) A fixed-size data packet switch comprising:

N input ports to receive incoming fixed-size data packets at a first data rate and to output said fixed-size data packets at said first data rate;

N output ports to receive fixed-size data packets at said first data rate and to output said fixed-size data packets at said first data rate; and

a switch fabric interconnecting said N input ports and said N output ports comprising:

N input buffers to receive incoming fixed-size data packets from at least one of said N input ports at said first data rate and to output said fixed-size data packets at a second data rate equal to at least twice said first data rate, wherein said N input buffers are internal to said switch fabric and are external to said N input ports and queuing the fixed-size data packets through a virtual output queue according to their destination port;

N output buffers to receive fixed-size data packets at said second data rate and to output said fixed-size data packets at said first data rate to said at least one of said N output ports, wherein said N output buffers are internal to said switch fabric and are external to said N output ports, wherein the input and output scheduler schedule the at least one incoming data packet and one incoming fixed data packet once per timeslot;

a bufferless, non-blocking interconnecting network to receive from said N input buffers said fixed-size data packets at said second data rate and to transfer said fixed-size data packets to said N output buffers at said second data rate; and

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a scheduling controller connected to the bufferless, non-blocking interconnecting network

wherein the scheduling controller is configured to emulate a crossbar within the bufferless, non-

blocking interconnecting network and determines a maximal configuration of the bufferless, non-

blocking interconnecting network based upon the data in the N input buffers and controls the

configuration of the bufferless, non-blocking interconnecting network and wherein the scheduling

controller further promotes a transmitting of a matched head of line cell at each virtual output queue

and repeats the configuration of the crossbar twice per time slot.

8. (Original) The fixed-size data packet switch as set forth in Claim 7 wherein said

bufferless, non-blocking interconnecting network comprises a bufferless crossbar.

9. (Original) The fixed-size data packet switch as set forth in Claim 7 wherein each of said

N input buffers is at least twice the size of each of said N output buffers.

10. (Previously Presented) The fixed-size data packet switch as set forth in Claim 7 wherein

the scheduling controller schedules transfer of said fixed-size data packets from said N input ports to

said switch fabric.

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11. (Previously Presented) The fixed-size data packet switch as set forth in Claim 10

wherein said scheduling controller schedules transfer of said fixed-size data packets from said N

output ports to an external device.

12. (Previously Presented) The fixed-size data packet switch as set forth in Claim 10

wherein said scheduling controller schedules transfer of said fixed-size data packets from said N

input buffers to said bufferless, non-blocking interconnecting network.

13. (Previously Presented) The fixed-size data packet switch as set forth in Claim 12

wherein said scheduling controller schedules transfer of said fixed-size data packets from said N

output buffers to said N output ports.

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14. (Currently Amended) A communication network to transfer data in fixed-size packets

between a plurality of end-user devices, said communication network comprising:

a plurality of fixed-size data packet switches, at least one of said fixed-size data packet

switches comprising:

N input ports configured to receive incoming fixed-size data packets at a first data

rate and to output said fixed-size data packets at said first data rate;

N output ports configured to receive fixed-size data packets at said first data rate and

to output said fixed-size data packets at said first data rate; and

a switch fabric interconnecting said N input ports and said N output ports comprising:

N input buffers configured to receive incoming fixed-size data packets at said first

data rate and to output said fixed-size data packets at a second data rate equal to at least twice said

first data rate, wherein said N input buffers are internal to said switch fabric and are external to said

N input ports and queuing the incoming fixed-size data packets through a virtual output queue

according to their destination port;

N output buffers configured to receive fixed-size data packets at said second data rate

and to output said fixed-size data packets at said first data rate, wherein said N output buffers are

internal to said switch fabric and are external to said N output ports wherein the input and output

scheduler schedule the at least one incoming data packet and one incoming fixed data packet once

per timeslot;

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a bufferless, non-blocking interconnecting network configured to receive from said N

input buffers said fixed-size data packets at said second data rate and to transfer said fixed-size data

packets to said N output buffers at said second data rate; and

a scheduling controller connected to the bufferless, non-blocking interconnecting

network, wherein the scheduling controller determines a maximal configuration of the bufferless,

non-blocking interconnecting network based upon the data in the N input buffers and controls the

configuration of the bufferless, non-blocking interconnecting network using an emulated crossbar

within the bufferless, non-blocking interconnecting network, and wherein the scheduling controller

further promotes a transmitting of a matched head of line cell at each virtual output queue and

repeats the configuration of the emulated crossbar twice per time slot.

15. (Original) The communication network as set forth in Claim 14 wherein said bufferless,

non-blocking interconnecting network comprises a bufferless crossbar.

16. (Original) The communication network as set forth in Claim 14 wherein each of said N

input buffers is at least twice the size of each of said N output buffers.

17. (Previously Presented) The communication network as set forth in Claim 14 further

comprising a scheduling controller schedules transfer of said fixed-size data packets from said N

input ports to said switch fabric. .

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18. (Previously Presented) The communication network as set forth in Claim 17 wherein

said scheduling controller schedules transfer of said fixed-size data packets from said N output ports

to an external device.

19. (Previously Presented) The communication network as set forth in Claim 17 wherein

said scheduling controller schedules transfer of said fixed-size data packets from said N input buffers

to said bufferless, non-blocking interconnecting network.

20. (Previously Presented) The communication network as set forth in Claim 19 wherein

said scheduling controller schedules transfer of said fixed-size data packets from said N output

buffers to said N output ports.

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